Environmental Consultants
6 Jones St (PO Box 6118)
Wagga Wagga NSW 2650
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www.dmmcmahon.com.au

27 March 2026

Attention: Rob Johnston
Pig Improvement Company Australia Pty Ltd
PO Box 39
Grong Grong NSW 2652
rjohnston@picaustralia.com.au
BY EMAIL

Dear Rob

Re: Environmental monitoring – PIC Grong Grong Pig Accommodation

I refer to the written request from yourself to conduct environmental monitoring at the PIC Grong Grong Pig Accommodation Grong Grong NSW. The intended recipient of this report is Rob Johnston of Pig Improvement Company Australia Pty Ltd to satisfy the requirements of NSW EPA Environmental Protection Licence No. 5471. It is assumed that third parties will not rely on this report, however DM McMahon Pty Ltd is required to be consulted if the report is to be used for any other purpose.

Objective and scope

The objective of the environmental monitoring is to satisfy the requirements of Environmental Protection Licence No. 5471 (Licence version date 9 August 2023).

The requirements of the licence are to:

- Collect groundwater samples on a six monthly basis from eight groundwater monitoring bores (Point 2, Point 3, Point 4, Point 5, Point 6, Point 7, Point 8 and Point 9). Samples will be tested for conductivity, nitrate, nitrite, nitrogen (ammonia), nitrogen (total), pH, potassium, sodium and total dissolved solids. Standing water level will be measured quarterly.

The scope of this monitoring round is to collect groundwater samples from the eight groundwater monitoring bores.

Location and description of the site

The monitoring points are located at the PIC Grong Grong Pig Accommodation, Berembed Weir Road Grong Grong NSW, **Attachment A**. The site is a 500-tonne accommodation capacity piggery and the effluent produced is applied to land by irrigation. The pig accommodation sheds are in the north east of

the site with effluent storage ponds to the north west and south west of the accommodation sheds. The irrigation area lies to the west of the accommodation sheds.

Description of the regional and local environment

The subject site lies at an elevation of approximately 153-163m AHD on a south west trending piedmont slope and alluvial flat. Soils on the higher ground are deep red clayey colluvium and residuum overlying Ordovician sediments, while the flat is far-floodplain Quaternary alluvium consisting of grey clay. The higher ground in the north east is very gently inclined while the lower ground is a level typical of the Murrumbidgee River floodplain. The Cowabbie Creek traverses the site is a south westerly direction and is joined by the Boggy Creek near the eastern site boundary. Both Cowabbie Creek and Boggy Creek are intermittent drainages with intermediate scale catchments. Bundidgerry Creek lies to the immediate south of the southern site boundary and flows in a generally westerly direction.

Records of fieldwork, including methods and results

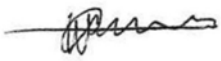
The groundwater monitoring locations were sampled on 13 March 2026 by reference to AS5667.1:1998 Water Quality Sampling Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples and AS5667.11:1998 Part 11: Guidance on sampling of groundwaters.

Summary of results

The tabulated results can be seen in **Attachment B** and the laboratory report in **Attachment C**.

If you have any queries about the contents of this letter format report, please contact the undersigned.

Yours sincerely



Will Arthur
Environmental Scientist
BMedSc MEnv
MALGA MEIANZ

Disclaimer

The information contained in this report has been extracted from sources believed to be reliable and accurate. DM McMahon Pty Ltd will not assume any responsibility for the misinterpretation of information supplied in this report. The accuracy and reliability of recommendations identified in this report need to be evaluated with due care according to individual circumstances. The results of the assessment undertaken are an overall representation of the conditions encountered. It should be noted that the recommendations and findings in this report are based solely upon the said site location and the

ground level conditions at the time of testing. The results of the said investigations undertaken are an overall representation of the conditions encountered. The properties of the soil within the location may change due to variations in ground conditions outside of the tested area. The author has no control or liability over site variability that may warrant further investigation that may lead to significant design changes.

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Attachments

A. Sampling locations map
B. Tabulated results
C. Laboratory report

Attachment A

314 Grong Grong River Road Grong Grong NSW 2652

Pig Improvement Company Australia Pty Ltd
Groundwater monitoring locations
NSW EPA Environmental Protection Licence 5471

Legend

- Boundary
- Point 2-9 (Groundwater)

Point 4
Point 5
Point 3 (shallow) and Point 7 (deep)
Point 2 (shallow) and Point 6 (deep)
Point 8 (shallow) and Point 9 (deep)
Grong Grong River Rd
Bundidgerry Creek
Bundidgerry Creek
Grong Grong River Rd
Old Wagga Rd
N
1 km
Google Earth
Image © 2024 Airbus

Attachment B

PIC Grong Grong Pig Accommodation - Environmental Protection Licence 5471 (licence version date 31 July 2023) Monitoring period 1 September 2025 to 31 August 2026 Point 2 - Groundwater quality monitoring bore identifed as P3 A (six monthly groundwater monitoring)													
Parameters	**Units**	**Sep-25**	**Oct-25**	**Nov-25**	**Dec-25**	**Jan-26**	**Feb-26**	**Mar-26**	**Apr-26**	**May-26**	**Jun-26**	**Jul-26**	**Aug-26**
Conductivity	µS/cm	18000	-	-	-	-	-	Dry	-	-	-	-	-
Nitrate	mg/L	17	-	-	-	-	-	Dry	-	-	-	-	-
Nitrite	mg/L	0.086	-	-	-	-	-	Dry	-	-	-	-	-
Nitrogen (ammonia)	mg/L	<0.01	-	-	-	-	-	Dry	-	-	-	-	-
Nitrogen (total)	mg/L	17	-	-	-	-	-	Dry	-	-	-	-	-
pH	pH	7.3	-	-	-	-	-	Dry	-	-	-	-	-
Phosphorus	mg/L	0.10	-	-	-	-	-	Dry	-	-	-	-	-
Potassium	mg/L	41	-	-	-	-	-	Dry	-	-	-	-	-
Sodium	mg/L	4100	-	-	-	-	-	Dry	-	-	-	-	-
Standing water level	mBTOC	4.96	-	-	-	-	-	Dry	-	-	-	-	-
Standing water level	mAHD	148.94	-	-	-	-	-	Dry	-	-	-	-	-
Total dissolved solids	mg/L	15000	-	-	-	-	-	Dry	-	-	-	-	-

PIC Grong Grong Pig Accommodation - Environmental Protection Licence 5471 (licence version date 31 July 2023)													
Monitoring period 1 September 2025 to 31 August 2026													
Point 3 - Groundwater quality monitoring bore identifed as P5 A (six monthly groundwater monitoring)													
Parameters	**Units**	**Sep-25**	**Oct-25**	**Nov-25**	**Dec-25**	**Jan-26**	**Feb-26**	**Mar-26**	**Apr-26**	**May-26**	**Jun-26**	**Jul-26**	**Aug-26**
Conductivity	µS/cm	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Nitrate	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Nitrite	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Nitrogen (ammonia)	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Nitrogen (total)	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
pH	pH	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Phosphorus	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Potassium	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Sodium	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Standing water level	mBTOC	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Standing water level	mAHD	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Total dissolved solids	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-

PIC Grong Grong Pig Accommodation - Environmental Protection Licence 5471 (licence version date 31 July 2023) Monitoring period 1 September 2025 to 31 August 2026 Point 4 - Groundwater quality monitoring bore identifed as P1 A (six monthly groundwater monitoring)													
Parameters	**Units**	**Sep-25**	**Oct-25**	**Nov-25**	**Dec-25**	**Jan-26**	**Feb-26**	**Mar-26**	**Apr-26**	**May-26**	**Jun-26**	**Jul-26**	**Aug-26**
Conductivity	µS/cm	41000	-	-	-	-	-	35000	-	-	-	-	-
Nitrate	mg/L	<0.25	-	-	-	-	-	0.98	-	-	-	-	-
Nitrite	mg/L	<0.005	-	-	-	-	-	0.007	-	-	-	-	-
Nitrogen (ammonia)	mg/L	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-
Nitrogen (total)	mg/L	0.26	-	-	-	-	-	1.4	-	-	-	-	-
pH	pH	6.9	-	-	-	-	-	6.7	-	-	-	-	-
Phosphorus	mg/L	0.07	-	-	-	-	-	0.11	-	-	-	-	-
Potassium	mg/L	96	-	-	-	-	-	100	-	-	-	-	-
Sodium	mg/L	5700	-	-	-	-	-	5800	-	-	-	-	-
Standing water level	mBTOC	3.67	-	-	-	-	-	3.91	-	-	-	-	-
Standing water level	mAHD	151.46	-	-	-	-	-	151.22	-	-	-	-	-
Total dissolved solids	mg/L	26000	-	-	-	-	-	22000	-	-	-	-	-

PIC Grong Grong Pig Accommodation - Environmental Protection Licence 5471 (licence version date 31 July 2023) Monitoring period 1 September 2025 to 31 August 2026 Point 5 - Groundwater quality monitoring bore identifed as P2 A (six monthly groundwater monitoring)													
Parameters	**Units**	**Sep-25**	**Oct-25**	**Nov-25**	**Dec-25**	**Jan-26**	**Feb-26**	**Mar-26**	**Apr-26**	**May-26**	**Jun-26**	**Jul-26**	**Aug-26**
Conductivity	µS/cm	35000	-	-	-	-	-	8600	-	-	-	-	-
Nitrate	mg/L	12	-	-	-	-	-	140.0	-	-	-	-	-
Nitrite	mg/L	<0.005	-	-	-	-	-	0.37	-	-	-	-	-
Nitrogen (ammonia)	mg/L	<0.05	-	-	-	-	-	0.06	-	-	-	-	-
Nitrogen (total)	mg/L	12	-	-	-	-	-	140	-	-	-	-	-
pH	pH	7.2	-	-	-	-	-	7.2	-	-	-	-	-
Phosphorus	mg/L	0.11	-	-	-	-	-	1.2	-	-	-	-	-
Potassium	mg/L	61	-	-	-	-	-	62	-	-	-	-	-
Sodium	mg/L	5500	-	-	-	-	-	1700	-	-	-	-	-
Standing water level	mBTOC	2.26	-	-	-	-	-	2.24	-	-	-	-	-
Standing water level	mAHD	150.82	-	-	-	-	-	150.84	-	-	-	-	-
Total dissolved solids	mg/L	20000	-	-	-	-	-	6800	-	-	-	-	-

PIC Grong Grong Pig Accommodation - Environmental Protection Licence 5471 (licence version date 31 July 2023) Monitoring period 1 September 2025 to 31 August 2026 Point 6 - Groundwater quality monitoring bore identifed as P3 B (six monthly groundwater monitoring)													
Parameters	**Units**	**Sep-25**	**Oct-25**	**Nov-25**	**Dec-25**	**Jan-26**	**Feb-26**	**Mar-26**	**Apr-26**	**May-26**	**Jun-26**	**Jul-26**	**Aug-26**
Conductivity	µS/cm	19000	-	-	-	-	-	18000	-	-	-	-	-
Nitrate	mg/L	16	-	-	-	-	-	13	-	-	-	-	-
Nitrite	mg/L	0.011	-	-	-	-	-	0.01	-	-	-	-	-
Nitrogen (ammonia)	mg/L	<0.01	-	-	-	-	-	<0.05	-	-	-	-	-
Nitrogen (total)	mg/L	17	-	-	-	-	-	13	-	-	-	-	-
pH	pH	7.6	-	-	-	-	-	7.1	-	-	-	-	-
Phosphorus	mg/L	0.1	-	-	-	-	-	0.16	-	-	-	-	-
Potassium	mg/L	41	-	-	-	-	-	45	-	-	-	-	-
Sodium	mg/L	4200	-	-	-	-	-	4500	-	-	-	-	-
Standing water level	mBTOC	4.76	-	-	-	-	-	4.92	-	-	-	-	-
Standing water level	mAHD	148.32	-	-	-	-	-	148.18	-	-	-	-	-
Total dissolved solids	mg/L	16000	-	-	-	-	-	17000	-	-	-	-	-

PIC Grong Grong Pig Accommodation - Environmental Protection Licence 5471 (licence version date 31 July 2023) Monitoring period 1 September 2025 to 31 August 2026 Point 7 - Groundwater quality monitoring bore identifed as P5 B (six monthly groundwater monitoring)													
Parameters	**Units**	**Sep-25**	**Oct-25**	**Nov-25**	**Dec-25**	**Jan-26**	**Feb-26**	**Mar-26**	**Apr-26**	**May-26**	**Jun-26**	**Jul-26**	**Aug-26**
Conductivity	µS/cm	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Nitrate	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Nitrite	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Nitrogen (ammonia)	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Nitrogen (total)	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
pH	pH	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Phosphorus	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Potassium	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Sodium	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Standing water level	mBTOC	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Standing water level	mAHD	Dry	-	-	-	-	-	Dry	-	-	-	-	-
Total dissolved solids	mg/L	Dry	-	-	-	-	-	Dry	-	-	-	-	-

N/A = not enough water to sample

PIC Grong Grong Pig Accommodation - Environmental Protection Licence 5471 (licence version date 31 July 2023) Monitoring period 1 September 2025 to 31 August 2026 Point 8 - Groundwater quality monitoring bore identifed as P4 A (six monthly groundwater monitoring)													
Parameters	**Units**	**Sep-25**	**Oct-25**	**Nov-25**	**Dec-25**	**Jan-26**	**Feb-26**	**Mar-26**	**Apr-26**	**May-26**	**Jun-26**	**Jul-26**	**Aug-26**
Conductivity	µS/cm	7200	-	-	-	-	-	6700	-	-	-	-	-
Nitrate	mg/L	14	-	-	-	-	-	16	-	-	-	-	-
Nitrite	mg/L	<0.005	-	-	-	-	-	0.006	-	-	-	-	-
Nitrogen (ammonia)	mg/L	<0.01	-	-	-	-	-	0.02	-	-	-	-	-
Nitrogen (total)	mg/L	14	-	-	-	-	-	19	-	-	-	-	-
pH	pH	7.8	-	-	-	-	-	7.4	-	-	-	-	-
Phosphorus	mg/L	0.2	-	-	-	-	-	2	-	-	-	-	-
Potassium	mg/L	8.3	-	-	-	-	-	8.9	-	-	-	-	-
Sodium	mg/L	1300	-	-	-	-	-	1300	-	-	-	-	-
Standing water level	mBTOC	4.20	-	-	-	-	-	4.37	-	-	-	-	-
Standing water level	mAHD	147.69	-	-	-	-	-	147.52	-	-	-	-	-
Total dissolved solids	mg/L	5300	-	-	-	-	-	5100	-	-	-	-	-

PIC Grong Grong Pig Accommodation - Environmental Protection Licence 5471 (licence version date 31 July 2023)													
Monitoring period 1 September 2025 to 31 August 2026													
Point 9 - Groundwater quality monitoring bore identifed as P4 B (six monthly groundwater monitoring)													
Parameters	**Units**	**Sep-25**	**Oct-25**	**Nov-25**	**Dec-25**	**Jan-26**	**Feb-26**	**Mar-26**	**Apr-26**	**May-26**	**Jun-26**	**Jul-26**	**Aug-26**
Conductivity	µS/cm	5500	-	-	-	-	-	4800	-	-	-	-	-
Nitrate	mg/L	11	-	-	-	-	-	13	-	-	-	-	-
Nitrite	mg/L	<0.005	-	-	-	-	-	0.007	-	-	-	-	-
Nitrogen (ammonia)	mg/L	<0.01	-	-	-	-	-	0.02	-	-	-	-	-
Nitrogen (total)	mg/L	11	-	-	-	-	-	13	-	-	-	-	-
pH	pH	7.7	-	-	-	-	-	7.4	-	-	-	-	-
Phosphorus	mg/L	0.24	-	-	-	-	-	0.39	-	-	-	-	-
Potassium	mg/L	6.4	-	-	-	-	-	6.3	-	-	-	-	-
Sodium	mg/L	960	-	-	-	-	-	930	-	-	-	-	-
Standing water level	mBTOC	4.21	-	-	-	-	-	4.36	-	-	-	-	-
Standing water level	mAHD	147.70	-	-	-	-	-	147.55	-	-	-	-	-
Total dissolved solids	mg/L	4000	-	-	-	-	-	3600	-	-	-	-	-

Attachment C

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Admin
Client	DM MCMAHON
Address	6 Jones Street Wagga Wagga PO Box 6118 WAGGA WAGGA NSW 2650
Telephone	61 2 69310510
Facsimile	(Not specified)
Email	admin@dmmcmahon.com.au
Project	**10718 PIC Australia Pty Ltd -Grong Grong**
Order Number	**10718**
Samples	6

LABORATORY DETAILS

Manager	Shane McDermott
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE298954 R0**
Date Received	17/3/2026
Date Reported	24/3/2026

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

Ammonia Nitrogen - The Limit of Reporting (LOR) for sample 1 and 3 have been raised due to matrix interference.

SIGNATORIES

Dong LIANG

Metals/Inorganics Team Leader

pH in water [AN101] Tested: 17/3/2026

PARAMETER	UOM	LOR	P1 A WATER - 13/3/2026 SE298954.001	P2 A WATER - 13/3/2026 SE298954.002	P3 B WATER - 13/3/2026 SE298954.003	P4 A WATER - 13/3/2026 SE298954.004	P4 B WATER - 13/3/2026 SE298954.005
pH**	No unit	-	**6.7**	**7.2**	**7.1**	**7.4**	**7.4**

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
pH**	No unit	-	**7.0**

Conductivity and TDS by Calculation - Water [AN106] Tested: 17/3/2026

PARAMETER	UOM	LOR	P1 A WATER - 13/3/2026 SE298954.001	P2 A WATER - 13/3/2026 SE298954.002	P3 B WATER - 13/3/2026 SE298954.003	P4 A WATER - 13/3/2026 SE298954.004	P4 B WATER - 13/3/2026 SE298954.005
Conductivity @ 25 C	µS/cm	2	35000	8600	18000	6700	4800
Total Dissolved Solids (by calculation)	mg/L	2	-	-	-	-	-

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Conductivity @ 25 C	µS/cm	2	150
Total Dissolved Solids (by calculation)	mg/L	2	89

Anions by Ion Chromatography in Water [AN245] Tested: 19/3/2026

PARAMETER	UOM	LOR	P1 A WATER - 13/3/2026 SE298954.001	P2 A WATER - 13/3/2026 SE298954.002	P3 B WATER - 13/3/2026 SE298954.003	P4 A WATER - 13/3/2026 SE298954.004	P4 B WATER - 13/3/2026 SE298954.005
Nitrate Nitrogen, NO3-N	mg/L	0.005	**0.98**	**140**	**13**	**16**	**13**
Fluoride	mg/L	0.02	-	-	-	-	-
Chloride	mg/L	1	-	-	-	-	-
Sulfate, SO4	mg/L	1	-	-	-	-	-

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Nitrate Nitrogen, NO3-N	mg/L	0.005	**0.046**
Fluoride	mg/L	0.02	**0.12**
Chloride	mg/L	1	**10**
Sulfate, SO4	mg/L	1	**4.8**

Nitrite in Water [AN277] Tested: 18/3/2026

PARAMETER	UOM	LOR	P1 A WATER - 13/3/2026 SE298954.001	P2 A WATER - 13/3/2026 SE298954.002	P3 B WATER - 13/3/2026 SE298954.003	P4 A WATER - 13/3/2026 SE298954.004	P4 B WATER - 13/3/2026 SE298954.005
Nitrite Nitrogen, NO2 as N	mg/L	0.005	**0.007**	**0.37**	**0.010**	**0.006**	**0.007**
Total Oxidised Nitrogen, NOx-N	mg/L	0.005	**0.99**	**140**	**13**	**16**	**13**

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Nitrite Nitrogen, NO2 as N	mg/L	0.005	<0.005
Total Oxidised Nitrogen, NOx-N	mg/L	0.005	**0.049**

TKN Kjeldahl Digestion by Discrete Analyser [AN281/292] Tested: 19/3/2026

PARAMETER	UOM	LOR	P1 A WATER - 13/3/2026 SE298954.001	P2 A WATER - 13/3/2026 SE298954.002	P3 B WATER - 13/3/2026 SE298954.003	P4 A WATER - 13/3/2026 SE298954.004	P4 B WATER - 13/3/2026 SE298954.005
Total Kjeldahl Nitrogen	mg/L	0.05	**0.45**	**5.0**	**0.72**	**2.2**	**0.52**
Total Nitrogen (calc)	mg/L	0.05	**1.4**	**140**	**13**	**19**	**13**

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Total Kjeldahl Nitrogen	mg/L	0.05	**0.08**
Total Nitrogen (calc)	mg/L	0.05	**0.13**

Ammonia Nitrogen by Discrete Analyser [AN291] Tested: 18/3/2026

PARAMETER	UOM	LOR	P1 A WATER - 13/3/2026 SE298954.001	P2 A WATER - 13/3/2026 SE298954.002	P3 B WATER - 13/3/2026 SE298954.003	P4 A WATER - 13/3/2026 SE298954.004	P4 B WATER - 13/3/2026 SE298954.005
Ammonia Nitrogen, NH_3 as N	mg/L	0.01	<0.05↑	**0.06**	<0.05↑	**0.02**	**0.02**

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Ammonia Nitrogen, NH_3 as N	mg/L	0.01	**0.02**

Total Phosphorus by Kjeldahl Digestion DA in Water [AN279/AN293] Tested: 19/3/2026

PARAMETER	UOM	LOR	P1 A WATER - 13/3/2026 SE298954.001	P2 A WATER - 13/3/2026 SE298954.002	P3 B WATER - 13/3/2026 SE298954.003	P4 A WATER - 13/3/2026 SE298954.004	P4 B WATER - 13/3/2026 SE298954.005
Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	**0.11**	**1.2**	**0.16**	**2.0**	**0.39**

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	<0.02

Alkalinity [AN135] Tested: 19/3/2026

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Bicarbonate Alkalinity as CaCO3	mg/L	5	**40**
Carbonate Alkalinity as CaCO3	mg/L	1	<1
Hydroxide Alkalinity as CaCO3	mg/L	5	<5
Phenolphthalein Alkalinity as CaCO3*	mg/L	5	<5
Total Alkalinity as CaCO3	mg/L	5	**40**

Filterable Reactive Phosphorus (FRP) [AN278] Tested: 18/3/2026

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Filterable Reactive Phosphorus as P	mg/L	0.005	**0.033**

Acidity and Free CO2 [AN140] Tested: 20/3/2026

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Acidity to pH 8.3	mg CaCO3/L	5	<5

Metals in Water (Total) by ICPOES [AN022/AN320] Tested: 18/3/2026

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Total Calcium	mg/L	0.1	**7.9**
Total Sodium	mg/L	0.1	**12**
Total Potassium	mg/L	0.2	**1.5**
Total Magnesium	mg/L	0.1	**4.5**

Trace Metals (Total) in Water by ICPMS [AN022/AN318] Tested: 23/3/2026

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Total Aluminium	µg/L	5	**13**
Total Iron	µg/L	5	**16**
Total Arsenic	µg/L	1	<1
Total Cadmium	µg/L	0.1	<0.1
Total Chromium	µg/L	1	<1
Total Copper	µg/L	1	**390**
Total Nickel	µg/L	1	<1
Total Lead	µg/L	1	**4**
Total Zinc	µg/L	5	**42**

Mercury (total) in Water [AN311(Perth) /AN312] Tested: 18/3/2026

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Soluble Mercury slave analyte from EW_APHA3112B	mg/L	0.0001	-
Total Mercury, Hg	mg/L	0.0001	<0.0001

Total Dissolved Solids (TDS) in water [AN113] Tested: 19/3/2026

PARAMETER	UOM	LOR	P1 A WATER - 13/3/2026 SE298954.001	P2 A WATER - 13/3/2026 SE298954.002	P3 B WATER - 13/3/2026 SE298954.003	P4 A WATER - 13/3/2026 SE298954.004	P4 B WATER - 13/3/2026 SE298954.005
Total Dissolved Solids Dried at 175-185°C	mg/L	10	22000	6800	17000	5100	3600

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Total Dissolved Solids Dried at 175-185°C	mg/L	10	74

Metals in Water (Dissolved) by ICPOES [AN320] Tested: 18/3/2026

PARAMETER	UOM	LOR	P1 A WATER - 13/3/2026 SE298954.001	P2 A WATER - 13/3/2026 SE298954.002	P3 B WATER - 13/3/2026 SE298954.003	P4 A WATER - 13/3/2026 SE298954.004	P4 B WATER - 13/3/2026 SE298954.005
Sodium, Na	mg/L	0.5	5800	1700	4500	1300	930
Potassium, K	mg/L	0.1	100	62	45	8.9	6.3

PARAMETER	UOM	LOR	Tap WATER - 13/3/2026 SE298954.006
Sodium, Na	mg/L	0.5	13
Potassium, K	mg/L	0.1	1.6

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN022/AN318	Following acid digestion of un filtered sample, determination of elements at trace level in waters by ICP-MS technique, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN022/AN320	Total (acid soluble) Metals by ICP-OES: Samples are digested in nitric or nitric and hydrochloric acids prior to analysis for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components.
AN022	The water sample is digested with Nitric Acid and made up to the original volume similar to APHA3030E.
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos /cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B.
AN106	Salinity may be calculated in terms of NaCl from the sample conductivity. This assumes all soluble salts present, measured by the conductivity, are present as NaCl.
AN113	Total Dissolved Solids: A well-mixed filtered sample of known volume is evaporated to dryness at 180°C and the residue weighed. Approximate methods for correlating chemical analysis with dissolved solids are available. Reference APHA 2540 C.
AN113	The Total Dissolved Solids residue may also be ignited at 550 C and volatile TDS (Organic TDS) and non-volatile TDS (Inorganic) can be determined.
AN135	Alkalinity (and forms of) by Titration: The sample is titrated with standard acid to pH 8.3 (P titre) and pH 4.5 (T titre) and permanent and/or total alkalinity calculated. The results are expressed as equivalents of calcium carbonate or recalculated as bicarbonate, carbonate and hydroxide. Reference APHA 2320. Internal Reference AN135
AN140	Acidity by Titration: The water sample is titrated with sodium hydroxide to designated pH end point. In a sample containing only carbon dioxide, bicarbonates and carbonates, titration to pH 8.3 at 25°C corresponds to stoichiometric neutralisation of carbonic acid to bicarbonate. Method reference APHA 2310 B.
AN245	Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO2, NO3 and SO4 are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B
AN277	Nitrite ions, when reacted with a reagent containing sulphanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride produce a highly coloured azo dye that is measured photometrically at 540nm.
AN278	Filterable Reactive Phosphorus by DA (determined on filtered sample): Orthophosphate reacts with ammonium molybdate (Mo VI) and potassium antimonyl tartrate (Sb III) in acid medium to form an antimony-phosphomolybdate complex. This complex is subsequently reduced with ascorbic acid to form a blue colour and the absorbance is read at 880 nm. The sensitivity of the automated method is 10-20 times that of the macro method. Reference APHA 4500-P F
AN279/AN293(Sydney)	The sample is digested with Sulphuric acid, K2SO4 and CuSO4. All forms of phosphorus are converted into orthophosphate. The digest is cooled and placed on the discrete analyser for colorimetric analysis.
AN281	An unfiltered water or soil sample is first digested in a block digestor with sulfuric acid, K2SO4 and CuSO4. The ammonia produced following digestion is then measured colourimetrically using the Discrete Analyser. A portion of the digested sample is buffered to an alkaline pH, and interfering cations are complexed. The ammonia then reacts with salicylate and hypochlorite to give a blue colour whose absorbance is measured at 660nm and compared with calibration standards. This is proportional to the concentration of Total Kjeldahl Nitrogen in the original sample.
AN291	Ammonia in solution reacts with hypochlorite ions from Sodium Dichloroisocyanuate, and salicylate in the presence of Sodium Nitroprusside to form indophenol blue and measured at 660 nm by Discrete Analyser.

AN311(Perth) /AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions taken from unfiltered sample are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN320	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components .
AN320	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements . Reference APHA 3120 B.
Calculation	Free and Total Carbon Dioxide may be calculated using alkalinity forms only when the samples TDS is <500mg/L. If TDS is >500mg/L free or total carbon dioxide cannot be reported . APHA4500CO2 D.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
***	Indicates that both * and ** apply.	LNR	Sample listed, but not received.		
NAD	No Asbestos Detected.	NA	Not Applicable.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: https://www.sgs.com/en-au/industry/environmental-health-and-safety.

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